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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,733	09/21/2006	Xiaolan Ai	091395-9431-01	2812
23409 7590 02/03/2011 MICHAEL BEST & FRIEDRICH LLP 100 E WISCONSIN AVENUE Suite 3300 MILWAUKEE, WI 53202				
EXAMINER				
DIAZ, THOMAS C				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/593,733

Applicant(s)

AI ET AL.

Examiner

THOMAS DIAZ

Art Unit

3656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3 is/are allowed.
- 6) ☒ Claim(s) 4-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 June 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date 12/09/2008, 09/19/2008, 11/20/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "air bag assembly" of claim 17, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to according to the objections listed on the PTO 948. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 4 and 16, Claim element "means for mounting at least one vehicle component" is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to clearly link or associate the disclosed structure, material, or acts to the claimed function such that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function. It is recommended to explicitly amend the specification such that it recites what structure is associated with the "means".

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it clearly links or associates the corresponding structure, material, or acts to the claimed function without introducing any new matter (35 U.S.C. 132(a)); or

(c) State on the record where the corresponding structure, material, or acts are set forth in the written description of the specification that perform the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

Claim 14 has a similar problem to claims 4 and 16 above.

Claims 5 and 19 recite "rotated in a first orientation" and "rotates in a second orientation". In the context of describing rotation it is unclear what is meant by the

limitations. It would be much clearer if applicant replaced "orientation" with - - direction -
- or - - rotational direction - -.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7, 12, 13, 16, 18, 19, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurata et al. (USP 4598602) in view of Kurata et al. (USP 4602523).

Regarding claim 5, Kurata '602 discloses an assembly comprising a first stationary ring member (24); a second stationary ring member (26) constructed and arranged to be mounted to a vehicle frame; a steering hub member (22a, 22b) having a first member (22a) and a second member (22b), the first member being constructed and arranged to be mounted to a steering shaft (see fig.4), the second member being constructed and arranged to be mounted to a steering wheel (see fig.4; device is capable). Kurata '602 further discloses a rotatable element (42) wherein, in use, when the steering wheel is rotated in a first orientation, the at least one rotatable element is constructed and arranged to rotate in a second orientation counter to the first orientation, such that the first stationary ring member remains in phase with the second stationary ring member (see fig.1).

Kurata '602 fails to explicitly disclose at least one **friction roller** assembly receivable by the steering hub member and comprising at least one rotatable element, the friction roller assembly being constructed and arranged to be in frictional contact with a portion of the steering hub member, a portion of the first stationary ring member, and a portion of the second stationary ring member.

Kurata '523 teaches the use of at least one friction roller assembly (fig.1, 28, 30, 32) receivable by a steering hub member and comprising at least one rotatable element (32), the friction roller assembly being constructed and arranged to be in frictional contact with a portion of the steering hub member, a portion of the first stationary ring member, and a portion of the second stationary ring member (see fig.1). Kurata '523 teaches the use of this assembly for the purpose of accurately holding the stationary rings still relative to each other. Such an assembly would allow the smooth contact of the cam rollers with the stationary rings thereby creating a smoother feel with less resistance when rotating the steering wheel and also provide less noise than a gearing assembly.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have replaced the gear assembly disclosed by Kurata '602 with the friction roller assembly, as taught by Kurata '523, for the purpose of accurately holding the stationary rings still relative to each other. Such an assembly would allow the smooth contact of the cam rollers with the stationary rings thereby creating a smoother feel with less resistance when rotating the steering wheel and also provide less noise than a gearing assembly.

Regarding claim 6, Kurata discloses, [wherein, in use, substantially zero backlash is produced at frictional contacts within the steering wheel mounting assembly.]

Regarding the functional recitation(s) in the claim(s) above denoted by the "[]" the examiner notes while features of an apparatus may be recited either structurally or functionally, claims directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. The reference discloses all the claimed structural limitations and therefore anticipates the claim. See MPEP 2114. Additionally, the apparatus is capable of performing the claimed functions.

Regarding claim 7, Kurata '602 discloses wherein the first member comprises a spindle and the second member comprises a radial flange extending from the spindle (see fig.1).

Regarding claim 12, Kurata '602 in view of Kurata '523 disclose the rotatable element comprises a shaft (32) with a bearing (journal bearing formed by shaft and hole in the flange) thereabout.

Regarding claim 13, Kurata '602 in view of Kurata '523 fail to explicitly disclose wherein the steering wheel mounting assembly comprises at least three friction roller assemblies. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made use of at least three friction roller assemblies since it has be held that the mere duplication of parts is within that of ordinary skill in the art and is of no patentable significance unless a new or unexpected result is produced. Furthermore, it is old and well-known in the art to use multiples of these types of assemblies as is done in planetary gearing arrangements.

Regarding claim 16, Kurata '602 discloses the first stationary ring member includes means (see fig.1, vehicle component 44 mounted on it) for mounting at least one vehicle component.

Regarding claim 18, Kurata '602 discloses the steering hub member is rotatably supported by the second stationary ring member (see fig.1).

Regarding claim 19, Kurata '602 in view of Kurata '523 as applied to claim 5 would read on this claim since this claim essentially only requires the assembly of the apparatus as claimed in claim 5.

Claims 8-10, 14, 15 and 20, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurata et al. (USP 4598602) in view of Kurata et al. (USP 4602523), as applied to claim 5 above, and further in view of Ono et al. (USP 4667529).

Regarding claim 8, Kurata '602 fails to explicitly disclose the first stationary ring member has a first bearing and a first cylindrical raceway, and the second stationary ring member has a second bearing and a second cylindrical raceway.

Ono et al. teaches the use of a first stationary ring (9) having a first bearing (balls of bearing 8) and a first cylindrical raceway (raceway of bearing 8), and a second stationary ring member (12) having a second bearing (balls of bearing 8) and a second cylindrical raceway (raceway of bearing 8), for the purpose of allowing for the smooth rotation the steering wheel hub relative to the stationary rings thereby decreasing

friction and increasing the durability and lifetime of the steering wheel mounting assembly.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device disclosed by Kurata '602 to include the bearing assemblies, as taught by Ono et al., or the purpose of allowing for the smooth rotation the steering wheel hub relative to the stationary rings thereby decreasing friction and increasing the durability and lifetime of the steering wheel mounting assembly.

Regarding claim 9, Ono et al. discloses wherein the first member has a first bearing raceway to engage the first bearing and a second bearing raceway to engage the second bearing (the steering hub has a corresponding bearing raceway of 8 attached to it).

Regarding claim 10, Kurata '602 discloses wherein the second member has at least one opening that defines a bearing surface (see fig.1 of Kurata).

Regarding claim 14, Kurata '602 fails to explicitly disclose means for minimizing skewing of the friction roller assembly.

Ono et al. teaches the use of means (fig.1, 15) for minimizing skewing of the roller assembly. The bearing cage as taught by Ono et al. has the benefit of holding the shaft of the friction roller assembly securely in place minimizing skewing as well as serving as a journal bearing for the shaft.

It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the device disclosed by Kurata '602 to include a means

(or bearing cage) for minimizing skewing of the friction roller assembly, as taught by Ono et al., for the purpose of holding the shaft of the friction roller assembly securely in place minimizing skewing as well as serving as a journal bearing for the shaft.

Regarding claims 15 and 20, Ono et al. discloses wherein the minimizing means comprise a cage. The cage confines at least one end of the friction roller assembly (confines at least one end of the shaft).

Claim 17, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurata et al. (USP 4598602) in view of Kurata et al. (USP 4602523), as applied to claim 5 above, and further in view of Kerner (USP 4771650).

Regarding claim 17, Kurata '602 fails to explicitly disclose the vehicle component comprises an air bag assembly.

Kerner teaches the use of an air bag assembly attached to a similar steering wheel mounting assembly for the purpose of keeping the air bag stationary.

It would have been obvious to one having ordinary skill in the art at the time of the invention to make use of an air bag assembly taught by Kerner, instead of the switching assembly disclosed by Kurata, depending on what functionality is needed in the vehicle. The air bag would have additional benefits of providing extra safety to the vehicle operator.

Allowable Subject Matter

Claims 1-3 are allowable over the prior art.

Claim 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph.

Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS DIAZ whose telephone number is (571)270-5461. The examiner can normally be reached on Monday-Friday 7:30am to 4:00pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571)272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas Diaz/
Examiner, Art Unit 3656